GOVERNMENT OF INDIA
NON-CONVENTIONAL ENERGY SOURCES
LOK SABHA

STARRED QUESTION NO:722
ANSWERED ON:16.05.2002
GENERATION OF SOLAR ENERGY
Y.G. MAHAJAN

Will the Minister of NON-CONVENTIONAL ENERGY SOURCES be pleased to state:

(a) the details of solar power generation potentiality in the country ; and

(b) the quantum of solar energy generated during the last three years and till date?

Answer

MINISTER OF STATE FOR NON -CONVENTIONAL ENERGY SOURCES (SHRI M. KANNAPPAN)

(a) & (b) : A statement is laid on the Table of the House.

STATEMENT REFERRED TO IN RELPY TO PART (a) & (b) OF THE LOK SABHA STARRED QUESTION NO. 722, FOR THURSDAY, THE 16TH MAY, 2002 ON GENERATION OF SOLAR ENERGY BY SHRI Y.G. MAHAJAN.

(a) : The solar radiation energy falling over India is about 5,000 trillion kWh / year. The average radiation incident over a square meter of horizontal surface is about 5.5 kWh / per day. There are about 250-300 clear sunny days in a year in most parts of the country. Solar Energy can be harnessed through two different routes : the solar photovoltaic (SPV) route for generation of electricity directly from sunlight and the solar thermal (ST) route for various heating applications and power generation. It is technically feasible to generate 20-35 MW of power from solar energy in India from 1 sq. km of land area. If 1 % of the land area of the country is utilized for generation of power from solar energy with an overall efficiency of 2%, over 600,000 MW of power can be generated.

This is, however, only the technical potential for power generation from solar energy. The cost of generation of power from solar energy is still high compared to conventional alternatives. Further, huge initial investments are required to set up large size solar power plants, even though their running costs may be significantly less compared to conventional power plants. Solar technologies for large scale power generation from centralized power plants have still not become economically viable anywhere in the world. However, decentralized generation and use of electricity from solar energy for small power applications through the SPV route has become very attractive in many situations. In addition, the use of solar energy for heating applications such as water heating and cooking through the thermal route is economically viable.

To exploit the solar energy potential optimally and in an economic manner, the Government is implementing country-wide programmes for the installation of solar energy systems for applications such as lighting, water pumping, electrification of remote villages and hamlets, water heating and cooking. Under the Ministry`s programme, a large number of solar energy systems like solar lanterns, solar home systems, street lighting systems, solar water pumping systems, stand alone and grid connected SPV power plants, solar water heaters for domestic and industrial applications and solar cookers have been installed. During the past decade, many other organizations have also started using SPV systems for a variety of applications on a commercial basis, as they are found to be economically viable in comparison to other alternatives. These systems are being used to provide power for rural telephones, battery charging, water supply, railway signaling, low power transmitters, cathodic protection, etc.

(b) : The aggregate capacity of SPV systems and power plants installed in the country for various applications till 31st March 2002 is about 55 MW (provisional). During the last three years such systems are estimated to have generated about 193 million units of electricity.